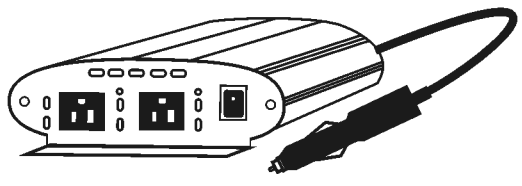
# sima®

## User Instructions for the SPV-1
## 140 watt Power Inverter
## M- Series

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P/N 21683 01.7

## Introduction

Congratulations on your purchase of the STP-150 Power Inverter. It lets you provide 115 Volts AC anywhere you have 12 volts; in your car, truck, RV or boat. It is designed to be easy to use and provide years of dependable service.

**IMPORTANT SAFETY NOTE**

Read all the Cautions and Warnings before installing and using the power inverter. The inverter must be properly installed. If you are not familiar with 12 volt, high-current wiring, it is recommended that you have a professional automotive installer install the inverter.

## Cautions

- **The STP-150 generates 115 Volts AC power from your 12 volt car battery. Treat the 115 Volt AC output just like you treat the 115 Volt AC in your house. It is just as dangerous.**
  **Keep away from children.**
- **With heavy use, the unit will become warm and possibly hot.**
  **Keep it away from any heat sensitive materials.**
- Do not connect the unit to AC distribution wiring.
- Keep the unit away from water. Do not allow water to drip or splash on the STP-150
- Keep the unit in cool environments. Ambient air temperature should be between 40 degrees and 80 degrees F.
- Keep out of direct sunlight and away from heating vents.
- Keep the unit away from flammable material or in any location which may accumulate flammable fumes or gases, such as the battery compartment of your car, boat, RV or truck.

## Health Advisory

**Sima Products does not authorize the use of the STP-150 with any products to be used in life support devices or systems.**

**Model No.** _____

**Date Purchased** _____

## Parts supplied with STP-150

STP-150 Power Inverter with cigarette plug
Spare 15 amp fuse
User Instructions (This document)

## Key Features

The STP-150 is designed for high-efficiency operation to provide the most output with the least battery power usage.

**Advanced protection**

- **Thermal Protection** shuts the unit off to guard against the unit getting too hot
- **Overload Protection** protects the unit from excessive loads
- **Under Voltage Protection** turns the unit off to protect the battery from being over discharged

This Sima power inverter produces a modified sine wave output which is suitable for most AC loads. This includes lights, appliances, motors, TVs and most electronics.

**CAUTION**: There are a few battery chargers that are not compatible with modified sine wave operation. These are typically small rechargeable, battery-operated devices like razors and flashlights that can be plugged directly into an AC receptacle to recharge.

Some chargers for battery packs used in power tools also should not be used with an inverter. These chargers typically have a warning label indicating that dangerous voltages are present at the battery terminals. Only a true sine wave inverter should be used with these types of appliances. Damage to the device could result if you attempt to use them with any type of modified sine wave inverter.

**Warning: Do not use the Sima power inverter with the devices mentioned above!**

### 90 Day Limited Warranty

Sima Products Corp. ("Company") warrants that if the accompanying product proves to be defective to the original purchaser in material or workmanship within 90 days from the original retail purchase, the Company will, at the Company's option, either repair or replace same without charge (but no cash refund will be made).

### Conditions

**1**. You must deliver, mail or ship the product, together with the original bill of sale, this limited Warranty statement as proof of warranty coverage to:

Sima Products Corp.
Att: Customer Service
140 Pennsylvania Ave., Bld. #5,
Oakmont, PA 15139
412-828-3700

It is recommended that you call Sima at the number listed above to obtain a return authorization number.

**2.** This warranty is void if any defects are caused by abuse, mis-use, negligence or unauthorized repairs.

**3.** All liability for incidential or consequential damages is specifically excluded. Some states do not allow the exclusion or limitation of incidential or consequential damages, so the above limitation or exclusion may not apply to you,. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### Limitation of Liability and Remedies

Sima shall have no liability for any damages due to lost profits, loss of use or anticipated benefits, or other incidental, consequential, special or punitive damages arising from the use of, or the inability to use, this product, whether arising out of contract, negligence, tort or under any warranty, even if Sima has been advised of the possibility of such damages. Sima's liability for damages in no event shall exceed the amount paid for this product. Sima neither assumes nor authorizes anyone to assume for it any other liabilities.

## Installation

**Needed for Installation (not included)**

Mounting hardware for the inverter
Tools

**Mounting**

**Step #1:** The STP-150 should be mounted on a solid flat surface capable of handling the weight of the unit, with space around the unit for ventilation. It is very important that the unit be secured using the proper sized mounting hardware (not included) to keep the unit from moving around or becoming loose in emergency situations.

> **CAUTION:** The power inverter must be mounted securely in any type of moving vehicle. In an emergency situation, if the power inverter is not securely mounted, it could cause bodily injury

**Connection to Power Source**

The STP-150 requires connection to a standard 12 volt DC power source as found in most cars, trucks, RVs and boats. The power source must provide between 11 and 15 volts DC. The power source must be able to provide sufficient current to power the load. At full power, the STP-150 will draw about 15 amps. The STP-150 comes with a cigarette lighter plug for easy connection to the power source. The tip of the plug is positive and the side contacts are negative. Insert the plug into a cigarette socket by pushing firmly for a good connection. A red indicator light on the adapter will light up. **Do not use a 12V extension cord with this unit.**

**Testing the Power Inverter**

Make sure the 12 volt power source is wired properly to the power inverter. With nothing plugged into the 115 VAC outlets, turn on the power switch of the STP-150.

If the green power light does not come on, turn the power switch off and check your wiring and external fuse.

With the inverter turned off, plug the appliance you want to use into the 115 VAC power outlet on the unit. Turn on the power switch of the STP-150. The appliance should now be operational.

## Operation

**Equipment Power Usage**

It is important to use only products that draw less than 150 watts with the STP-150. Use of products greater than 150 watts may either cause the protection circuitry of the STP-150 to shut down or the fuse to blow. Repeated use of excessive power draw can cause failure of the STP-150.

**How to calculate power usage.**

Most products have a power rating on them such as 45 watts. Others may be marked with their current draw, such as .9 amps. To convert the current to watts multiply the current by 115. Thus .9 amps x 115 = 104 watts.

**Turn the unit on**

Plug the appliance you want to use into the 115 VAC power outlet on the STP-150 (see Fig. 1 below). Turn on the power switch of the STP-150 so the green power light is illuminated. Turn on the appliance. The appliance should now be operational.*

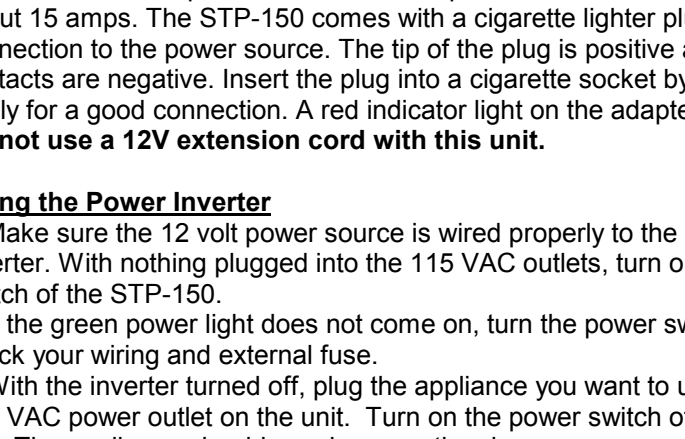


Fig. 1

* **Note :** Some products, such as televisions, draw a high surge current to start up. If the appliance does not operate and the inverter turns off, you may need a larger inverter. Check that the battery and the 12V wiring to the inverter is large enough to handle the current draw. Be sure the battery is fully charged. You may need to turn the power switch the STP-150 on and off a few times to get the appliance "started". Some motors and televisions may require this technique to get them operational.

Typical Power Usage Chart

| Typical Appliance | Typical Appliance Current Draw |
|---|---|
| Cellular phone charger | 20 watts |
| Camcorder | 30 watts |
| VCR | 45 watts |
| Soldering iron | 45 watts |
| Laptop computer | 70 watts |
| 13" TV | 70 watts |
| 100 watt work light | 100 watts |
| Small stereo system | 120 watts |

**Important: The STP-150 will not operate most appliances designed to produce heat such as hair dryers, heaters, toasters, and coffee makers.**

**Important**: The STP-150 can draw up to 15 amps from your car's battery when operating. If you are using it for extended periods of time, you will want to operate your car occasionally to maintain the charge in your car's battery. The STP-150 will also draw a small current when not operating, so it should be disconnected from your car's battery if your vehicle will not be used for a few days.

## Lights and Alarms

### Power Indicator (Green light)

The green light is illuminated when the inverter is turned on and is operating normally. If this light goes out, either the 12 volt power supply is missing (possible blown fuse) or some fault condition has occurred. These fault conditions include: output overload, output short circuit, low input voltage and over-temperature of the unit. This can happen if a device has a large start-up surge, if an appliance (like a drill or saw) is stalled or if the inverter does not have a circulating supply of cool air.

### Overload Fault (Red light)

The red light is illuminated when a current overload fault is detected.

An overload fault occurs when the power draw exceeds the inverter's maximum capability.

### An under-voltage fault (beep)

An under-voltage fault can occur when the input voltage reaches about 10.2 volts. The STP-150 will sound a continuous alarm and shut off when the input voltage drops to 9.6v to protect your battery from being completely discharged.

### An over-temperature fault

An over-temperature fault occurs when the STP-150 internal circuitry gets too hot due to overload or improper air circulation. The STP-150 will turn off the green power light and the unit will turn off.

**Fuse Replacement (see figure 2)**

If you overload the STP-150, it is possible that the fuse in the cigarette plug might blow. If this happens, unplug the cigarette plug from the power source, wait for the tip to cool and unscrew the metal tip on the plug. Remove the tip. Remove the fuse and install a new fuse rated at 15 amps. **Never use a fuse greater than 15 amps**. Replace the tip and screw firmly but do not over tighten. Always determine why the fuse blew and remedy the problem before using the STP-150 again.

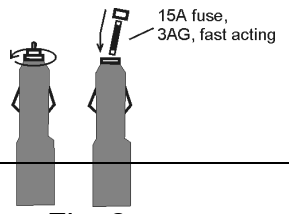


Fig. 2

### Troubleshooting Guide

| Problem | Possible cause | Solution |
|---|---|---|
| • Unit does not | • Input voltage is | • Attach to proper power |
| • Unit operates | • Load is trying to | • Be sure the load is less than |
| • Unit operates | • Inverter is in | • Allow inverter to cool down. |
| • Low battery | • Input voltage is | • Make sure car engine is |
| • Television and | • RF interference | • Position the power inverter |
| • 115 VAC | • Modified sine wave | • Use a true RMS meter like a |

## Product Specifications

| | |
|---|---|
| Max. continuous power output | 150 watts |
| Surge (peak) power output | 300 watts |
| Input voltage range | 11 to 15 vdc |
| No load current draw | < 0.2 amp |
| Full load current draw | 15 amps DC |
| Low battery alarm/shut-down | 10.2 V, +/- 0.5 V |
| Efficiency | 90% |
| Output waveform | Modified sine wave |
| Weight | 1.2 lbs. |
| Size | 5.7" x 4.3" x 2" |

### Battery Life Chart

| | | | |
|---|---|---|---|
| watt | | | |